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THE INTEGRATION OF SOUND AND COLOR: AN EXPERIMENT IN
SYNAESTHESIA INVOLVING MUSIC AND THE VISUAL ARTS

by

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B.A., Psychology, The University of Montana, 2004

B.A., Art, The University of Montana, 2003

presented in partial fulfillment of the requirements

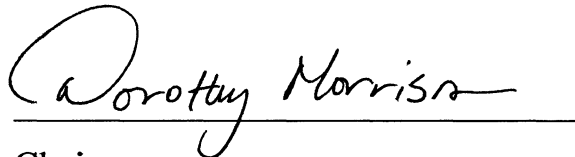
for the degree of

Master of Arts in Fine Arts, Integrated Arts and Education

The University of Montana

July 2006

Approved by:



Chairperson



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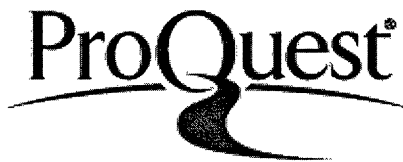


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The Integration of Sound and Color: An Experiment in Synaesthesia
Involving Music and the Visual Arts

Chairperson: Professor Dorothy Morrison



Synaesthesia, or blending of the senses, has been used by many well-known artists as a source of inspiration for their work. Abstract painting, in particular, has been strongly influenced by music. Researchers such as Howard Gardner, who developed the theory of multiple intelligences, recognize the significance of one intelligence influencing another. The consensus seems to be that by combining the intelligences through engagement, serves to enhance the outcome.

To examine this synergistic effect, I created an experiment in synaesthesia for art students. My goal was to have students create musical sounds with their body in response to color and identify those sounds with musical notes. Based on their color responses, students would create abstract paintings. Then, based on their identified musical notes, students would collaborate to create a musical interpretation of a painting of their choice.

The internal motivation for this project was to design a learning experience which allowed students to engage multiple intelligences to find new sources of inspiration for creating art. Based on the performances by students, I would definitely say this experience is worth doing again. The only caveat in this endeavor is logistics: It is difficult to find a space conducive to painting, playing instruments, and performing.

One element I would add to this experience is technology. When I presented my research to my fellow classmates, I gave them the same experience as my students. The only difference was that I projected their paintings onto a large screen during their performances. Since the class was so large, I felt the projection was practical for everyone to see, but it actually made a dramatic difference in how the performances were presented and received.

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To the many wonderful students, who possess the glorious gift of open-mindedness and trust as we send them through this institutional wilderness called education.

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PREFACE

While studying the Multiple Intelligences in the Creative Pulse program at the University of Montana, I came to the realization that Musical Intelligence was my least developed strength. After studying one of the assigned texts for the course, Dorothy Ling's *The Original Art of Music*, I realized the important connection between music and the visual arts. With this realization, I became determined to find a source of inspiration in the area of musical intelligence. I believed that this inspiration would strengthen my own musical intelligence, as well as enhance my abilities as an artist and teacher. I also hoped and dreamed to inspire other artists along the way.

I.

HISTORY OF SYNAESTHESIA

*If synaesthesia represents the unity of the senses,
the dream of synaesthesia is the unification of the arts.*

– Jeremy Strick from *Visual Music: Synaesthesia
in Art and Music Since 1900*

The history of synaesthesia, or blending of the senses, as it relates to Music and the Visual Arts, can be traced back to the beginning of the twentieth century. Modern art sought to express the optimism of the industrial revolution as a solution to societal problems. With modernism, the arts moved toward abstraction and away from naturalism. Abstract painting was the first on the scene of abstraction in the arts, and music clearly was its muse as evidenced in the music-inspired titles: Kupka's *Fugue in Two Colors*, 1912; Dove's *Sentimental Music*, 1913; Kandinsky's *Fugue*, 1914;

Ray's *Symphony Orchestra*, 1916; O'Keeffe's *Blue and Green Music*, 1921; Klee's *Nocturne for Horn*, 1921; Valensi's *Symphonie Verte*, 1935.

When I studied abstract painting as an undergraduate art student, I distinctly remember the correlations between music and the genre of Abstraction. The Abstract painters we studied in class had musical analogies for Abstraction: Orphic (Robert Delaunay); Lyrical (Antoni Tàpies); even balancing Dionysian dissonance with a harmonic, Apollonian ideal (Mark Rothko) (Stokstad, 1117).

Music served as an important catalyst for the abstract painters since it provided inspiration which did not depend on representation. The modernists' agenda was to create a work that had never been done. The emotive power of music was seen by some artists as an "essential ingredient of modern art" (Brougher, 59). Artist and teacher Arthur Wesley Dow stated:

Line, mass and color have pure aesthetic value
whether they represent anything or not.
Ceasing to make representation a standard
but comparing the visual arts with music.
Finding a common basis for *all* the visual arts
(Brougher, 59).

Arthur Dove also believed that abstracted painting benefited from music, stating “Anybody should be able to feel a certain state and express it in terms of paint or music...(Art) is nearer to music.” (Brougher, 62).

So why would these abstract painters seek to engage synaesthesia, i.e. combine their senses, with music and the visual arts? Clearly their goal was to enhance the latter through inspiration with the former. But they obviously recognized that music and visual arts existed in two separated realms. Yet these artists clearly felt the benefit of combining these two sensory experiences, albeit the outcome being beneficial for the visual artists and not necessary for the musicians whose work was clearly being utilized as "muse" in such instances.

For the writers who championed pure painting, music represented the most exalted form of creative expression. Invoking the mythical lyre player Orpheus, Guillaume Apollinaire coined the term "Orphic" in 1912 to denote the art of Robert Delaunay, the Czech painter Frantisek Kupka, and Francis Picabia, among others. He claimed their work attained the "the sublime...It is pure art." (Brougher, 38).

Artist Frantisek Kupka made a compelling argument for the need for non-representational art generated by synaesthesia:

It is necessary to regenerate painting, after so many centuries of devotion to religion, to dominating agents to the stupid bourgeoisie.

The public need to add to the action of the optic nerve those of the olfactory, acoustic, and sensory ones. I am still groping in the dark, but I believe I can find something between sight and hearing and I can produce a fugue in colors, as Bach has done in music. At any rate, I will no longer be content with slavish copy (Brougher, 38).

Howard Gardner believed the individual intelligences influenced each other, even enhanced one another.

Ties between music and spatial intelligence are less immediately evident but, quite possibly, no less genuine. The localization of musical capacities in the right hemisphere has suggested that certain musical abilities may be closely tied to spatial capacities. ...composers depend upon powerful spatial abilities, which are required to posit, appreciate, and revise the complex architectonic of a composition. ...speculates that the dearth of female composers may be due not to any difficulty with musical processing *per se* (witness the relatively large number female singers and performers) but rather to the relatively poorer performances in spatial tasks exhibited by females (Gardner, 123).

So perhaps the use of synaesthesia could blend the musical with the visual and spatial intelligences, thereby enhancing their respective strength. Could this blending help to bridge the female performance gap in spatial tasks as well?

II.

GROUP CHORAL EXPERIENCE

Music students must begin by singing and producing with their own voices, in a propitious attitude, sounds that are really musical. They must sing to and for themselves, and also in unison with others.
– Dorothy Ling from *The Original Art of Music*

For my Final Project I knew I would have to learn about singing.

However, since my last singing experience was in elementary school, I was feeling intimidated by the prospect of having to “make sounds” as a leader in front of students. Since my singing experience was limited to elementary school chorus, I decided to begin with the familiar and join a choir.

I found the choral group Con Brio quite by accident. While shopping for a harmonica - to study the elements of sound - in a music store, I noticed a flyer advertising a women’s international peace choir known as Con Brio (with Spirit). My initial visit convinced me that my fears of not being able read music very well and being essentially tone deaf would never matter to

these generous, warmhearted women. They did not allow me to sit and observe their practice for my first, free-of-charge visit. Instead, I was literally pulled into their circle, handed sheet music I could barely read, and then gently coaxed into joining their voices and, ultimately, their choir.

Part of my initial attraction to Con Brio was that it was an international peace choir. This meant that the group's goal was to sing music from many countries. The choir also made a point to schedule performances which not only celebrated music but also promoted greater understanding and peace. With so much strife in the world, I would look forward to participating in peacemaking for a change.

I joined Con Brio in November, just in time to get ready for the holiday season. Apparently the choir is in big demand for Christmas parties and holiday events in general. The first problem I ran into was that I did not read sheet music very well. I could follow the notes up and down on the scale well enough, but when scales changed I would have to just listen and try to follow along.

Our choir's first gig was only three weeks after I had joined the group. And since we only rehearsed once a week, this meant I had only practiced singing with the group three times. I felt too green to sing for this first

performance but promised to sing for their next event, which was their big Christmas fundraiser.

Every year, Con Brio sings for the annual fundraiser for a lesbian group. This event varies year to year, but usually ends up as a pageant or talent show with a Christmas theme. For this year's fundraiser, it was a talent show "a la Bing Crosby". Con Brio performed singing and dancing to R. Alex Anderson's *Mele Kalikimaka* (Hawaiian for Merry Christmas). We wore sarongs over jeans and snow boots, Hawaiian leis, and snow hats dusted with fake snow flakes. We danced the hula while we crooned the words, and the audience whooped and hollered for us. Thank goodness it was loud and rowdy since some of us were giggling through the lyrics at some points in the performance.

Our next big event was more serious: Martin Luther King Day. The rehearsals nearing the big day were becoming worse and worse. Choir members were either gone for the holiday season or down with the flu. At the last rehearsal before the performance, only three members besides my self showed up. I was sick with the flu and should have stayed home but felt too committed. The next week I was much worse and had to cancel the event. I felt horribly guilty and was amazed how attached I had become to this group in just a few short months.

Over the course of the next two months, my flu developed into walking pneumonia. Since I have asthma, any sort of lung infection causes protracted complications for recovery. I tried to return to rehearsals several times in the month of February but each time the singing only aggravated my lung infection. In March I quit Con Brio because I felt I am not physically healthy enough to commit to the regimen of weekly rehearsals. And to be part of a group, commitment is as necessary as talent.

Aside from the great experience of singing with a group, albeit brief, another benefit was my connection with the director, Melody Anderson. I felt I needed more information on “making sound” and knew Melody gave private voice lessons. She and I began to meet weekly at her home to find, at first, the full range of my voice. Then she had me concentrate on how to produce sounds within that range with a variety of quality. These exercises, I believed, would give me the strength and confidence to work with my students.

III.

PRIVATE VOICE LESSONS

*The musician's inner ear and attention
must always be focused on
the birth and quality of each individual sound,
not on the notes.*

– Dorothy Ling from *The Original Art of Music*

When I was planning my final creative project, I knew I would be asking my students to create sounds. I wanted their experience to be enjoyable so I wanted to empower them to succeed. My own lack of experience in singing, and in music in general, concerned me. Training the voice to make pleasing sounds took a considerable amount of time. I knew I would have to learn the basics and translate these fundamental lessons to my students. Of course, my objective was not for my students to learn to actually sing. But I did intend for my students to learn how create sounds with their bodies and, as Ling said, “be focused on the birth and quality of each individual sound, not on the notes.”

When I started my private voice lesson, I never expected the therapeutic effect of using my voice in a non-verbal way. To make sounds, and to concentrate on making these sounds without paying attention to notes, octaves, scales or any other notation of music made my private voice lessons a pleasure. And it was a visceral pleasure because it forced me to focus on not only the sound that was coming out of my body, but also what I was doing with my body to produce the sound.

I was using my entire body to produce sound. My legs, whether sitting or standing, were always in a position to ground me. I used my abdominal muscles as a bellows to pull air in before a sound, and slowly release it as I produced the sound. The muscles in my torso had to support my ribcage, holding it high above the bellows so it would not restrict its rhythmic flow. My shoulders had to constantly position themselves to keep my chest open, and to balance my neck so I could properly tilt my head. Even the muscles in my face received a workout, as they had to gesticulate the proper shape to articulate the desired sound.

Paradoxically, whenever I had difficulty creating a sound, one remedy was to not use any muscles in my face. This was achieved by gently biting on my finger. The goal was to keep my jaws in place so I had to rely on positioning my throat to open up my larynx. I learned the placement of the

larynx was the key to making round, open sounds and also the most difficult for singers to master. I felt the benefit of the exercise right away. By a slight tilt of my head forward or backward I could get a roundness of sound that was much better than by just shaping my mouth.

Successful as it was in creating pleasing sound, this exercise also helped me to discover my general source of discomfort with music vibration. The purpose of the exercise is to isolate the sound at the back of the throat in order to manipulate it better. The vibration of the sound becomes concentrated, instead of being released while singing in a natural way. This intense concentration of vibration caused a lot of physical discomfort for me. I have a long family history of migraines and have personally suffered from migraines symptoms since childhood. Many triggers, biological and environmental, can activate these symptoms. Unfortunately, strong vibration is one of the triggers. Of course I have known this for most of my life but have not made a direct connection with music until now.

My parents had migraines and I cannot remember them listening to music, nor did they ever sing or play instruments. My siblings and I listened to popular music during our adolescence but mostly in the presence of our peers. I cannot recall any of us “rocking out” for our own enjoyment. We also never sang nor played instruments. In the absence of entertaining our

friends, our home was quiet and reflective. Now I have to wonder if we were all genetically wired to be physically too sensitive to experience music.

What is more is that I attended an elementary music magnet school. The school's curriculum was simply stated that every student had to take a music class every year. I remember taking a guitar class but was removed for not being able to play. All I can remember was learning a few chords and then freezing up. Since I remember learning chords, I must have learned how to play. Now I have to wonder if the reason I stopped playing was because I was overwhelmed by the vibrations of playing the guitar strings.

My elementary school did not know what to do with me. Every music teacher passed me around until I eventually ended up in chorus. My school put on regular musical productions and so chorus was a valid occupation for the uncoordinated student. The only problem was that I would also "freeze up" during singing rehearsals as well. Fortunately, in a group situation I could get away with just mouthing the words to the songs and the choral director hardly noticed, or perhaps hardly cared.

I never discussed my freezing up with my parents or any teachers. It was something I just accepted. And as far as I can remember, it was only something that happened to me with music. All the other subjects in school

produced normal reactions. Oh sure, I hated math (and loved recess), but I never remember “freezing up” in math, not once.

Thirty years later, I started taking private voice lessons. Little did I know I would end up with the same frozen feeling I had experienced in elementary school. So I had my voice lesson and had my finger in my mouth to isolate my facial muscles and my jaws. My goal was to position my throat just right so my larynx could be in the best position to create round, open sounds. The vibrations from the sounds were buzzing through my entire skull. I could even feel my eyeballs vibrate! Suddenly, I froze. My voice instructor urged me to continue, telling me the sounds were great. I stalled by telling her I understood the technique and would work on it later at home.

What I really wanted to tell my voice instructor was that I was freezing up, but I did not know how to explain it. I was also scared that if I told her my problem, she would try different methods instead of just letting me stop. That was a big part of my freezing up problem, not only could I not perform what was expected of me, I also could not explain what was happening to me physiologically. My head did not hurt. I just wanted to stop all sounds, whether they were coming from me or not.

After that lesson, I went home and had a migraine by bedtime. It is really difficult to describe migraines to others since everyone’s migraine is

highly individualized. Mine are about seventy-percent headache with twenty-percent nausea, and ten-percent sensitivity to light, smell and noise. To those who have never experienced a migraine, I always tell them to just remember their worst hangover. The only difference is that I have experienced those physical sensations since childhood, on a regular basis, and without the benefit of intoxication!

Dr. Oliver Sacks, the eminent neurologist and fellow migraine sufferer, wrote in his seminal work *Migraine*

“Intolerance of noise (phonophobia) is an almost universal feature of the irritability characteristic of many migraines, but what needs emphasis here is the peculiarly aggravating, or provocative power of sounds of certain frequencies.” (Sacks, 150).

“That it is not the intensity of the sound as such; nor some particular hated timbre, but, very specifically, its *frequency* that is intolerable, may be tested experimentally in a clinical laboratory, monitoring the patient’s brain waves by EEG. One may find, in these circumstances, that it is only *particular frequencies* of flashing light or banging noise which cause gross disturbance in the brain wave patterns, *driving* these first, in synchrony with the stimulus, and then *kindling* a severe, paroxysmal cerebral response.” (Sacks, 151).

Now my voice lesson is making me look back and think how music has played a role in my migraine history. Is this why I have avoided music: by not singing, by not playing an instrument, and freezing up for over forty

years? I listen to some music, and I appreciate it to a limited extent. But the fact is that I do not participate in its creation. Then the question is: How can I integrate music and the visual arts for my students if I am so limited myself? And while I do not believe absolute proficiency is necessary, certainly the fundamental ability to engage in music making would be. If my brain is going to freeze up each time I encounter a musical experience, how would I be able to interact with my students during an integrated lesson plan?

It is not in my nature to discuss my health issues with people. Even discussions with doctors make me uncomfortable because most know little more about migraines than what the average magazine article publishes on the subject. And after thirty years of researching the subject myself, I have read and heard just about every imaginable factoid and, quite honestly, cannot stomach another syllable.

But I am still left with my problem of how to work with music. I do not want to shelve the idea and simply say I am disabled. I believe, rather, that I am simply challenged. The fact is that music challenges my body. I have to find a way to absorb its vibrations without freezing up. If I cannot experience music, then I cannot express music. And if I cannot express music, then I will not be able to integrate music into my art lesson plans.

IV.

EXPERIMENTS IN THE FIELD

*The image is a subtle vibration
which the inner eye and the inner musical ear capture
by coming into resonance with it.*

– Dorothy Ling from *The Original Art of Music*

In her book, Ling recounts her experiment with The Musical Image and Meaning in which she discovered the symbolic content of her drawings by responding to the impact of artistic sound (Ling, 15). Ling reported that her work produced six distinct levels: evolving from scribble to a less-chaotic scribble; from incipient to meaningless form; then, ultimately, from aesthetic to a symbolic, meaningful form (Ling, 14).

I noted that Ling's drawing responses were primarily to music which included lyrics and even sometimes to poetry. In her drawings I noticed shapes which represented words found in the poetry, e.g. a bird's wing in

Ode to a Skylark, cat's tale in *Our Favorite Cat*, and an obvious guitar for the Argentine folksong *Chacarera* (Ling, 27). Even her drawing in response to *The Prophet Bird* Schumann's Opus 82-No. 7, which is instrumental, has obvious wing shapes in the composition (Ling, 23).

For my experiment, I wanted to change the order of inspiration. Ling had been inspired by music to create her drawings. My experiment would use painting to inspire music. However, to engage the true source of inspiration I would begin the experiment by having students experience synaesthesia, or blending of their senses, by creating sounds with their own body, and then relate their personal sounds to primary colors. The blending of their senses would come from them relating their own sounds to colors. Each student would be asked to look at a color (on a large color panel) and asked to vocally respond with a sound.

The first thing students would have to practice is to how to produce sounds. In my private voices lessons, I learned how to produce different sounds using different areas of my body: my stomach to produce deep, strong sounds; my chest to produce round, open sounds; and my throat to produce sharp, variable sounds. I would teach my students to use these three areas to produce three distinct sounds, but I would give them "words" to help them form the sounds.

For instance, the word “hoo” would be useful in producing deep, strong sounds from the stomach area. The vowel sound of “ooo” could be used but the “h” in front of the sound forces the student to use more air and keeps him/her from making the sound from just the chest or throat areas. The word I chose for the chest area was “ahh” since it created relaxation automatically and the objective for this sound was to make round, open sounds. For the throat, I chose the word “wee” since it helped to engage the student’s nasal tone, bringing the sound up from the chest. Each of the three words was carefully chosen to facilitate and enhance the formation of the sound from the three areas of the students’ bodies. I was also careful to avoid words with specific representational value.

Once students were comfortable in creating the sounds from their stomach, chest, and throat areas, I would have them record their responses to color. First they would look at the color red, then decide whether the sound hoo, ahh, or wee resonated with that color. For the color blue they would also have choose hoo, ahh, or wee. Also for the color the yellow, they would have the same choice between hoo, ahh, and wee. To record students’ responses, I created a response sheet which listed the three colors (red, blue, and yellow), and under each color, students could circle the word (hoo, ahh,

or wee) they chose as the sound which they personally felt matched or resonated with that color (Appendix A, 28 and 30).

The next part of the experiment would be to match each color with a musical note (Appendix A, 29 and 31). This was a difficult decision to make since I have very little training in music. I know about the notes but nothing about theory, i.e. what three notes would work best if they were ultimately combined into a chord. My priority was for students to be able to distinguish the three notes and so from the scale A-B-C-D-E-F-G, I started with A, picked D from the middle, and ended with G. My rationale was to have three notes evenly distributed across the scale. I thought the consistent two-note distance between the choices would make the distinction more noticeable for the students. To record students' responses, I created a response sheet which listed the three colors (red, blue, and yellow), and under each color students could circle the notes (A, D, or G) they chose as the note which they personally felt matched or resonated with that color.

Once students had selected a sound and a note for each color, they were ready to create a composition. To practice this concept, I selected one student's response sheet for sounds and response sheet for notes. Then I assigned three students to vocalize those sounds, and three others to play those notes on a xylophone. While the color panels were turned away from

the vocal group and the xylophone group, there was to be no sound.

However, when the red panel was facing both groups, the students who were assigned to vocalize the word and the note associated with red would perform. The other students would likewise perform their respective sounds and notes as the blue and yellow panels were turned toward them.

The first thing I noticed was that the combination of the vocal group and the xylophone group did not work very well. At some points the vocal group could be heard clearly, at other times the xylophone group was strong, but the two groups were never evenly matched. I grew concerned and wondered if the notes were even necessary. My initial plan was for to have the vocal group match the notes played by the xylophone group, i.e. if red = hoo and G on the response sheets, then hoo should be vocalized as G. I wondered if this was too limiting or perhaps just distracting. My next response was to have students respond to color panels with just a vocal group or a xylophone group. I also considered giving each group a chance to perform individually.

One interesting response happened when more than one color panel was presented to both groups. The response of the vocal sounds and the notes combined and increased the students' volume. I also noticed that if I moved the color panels, students responded with rhythmic variations in their

performances. The best way to end a performance, I found, was to display all three color panels at once, gradually raise them, drop them abruptly, and turn them away from the student performers.

The next phase of the experiment was to have students create their own color schemes by creating a painting (Appendix B). Instead of responding to the color panels, they would be able to respond to their own color compositions. The first step was to have students use the color they identified with the “hoo” sound as their background color for their painting. I gave them a limited amount of time, as a challenge, to cover their paper with this background color. The second step of the painting was to use the color they associated with “ahh” sound to paint shapes on top of the background. I was surprised at how many students wanted to know exactly what shapes were, to which I would reply, “circles, triangles, squares, or anything you want.” The painting’s final step was to add highlights, but I was expecting to have to explain this terminology. “Highlights” I explained, “are what painters use to accent special areas of their paintings that they want people to notice.” I asked the students to slow down and put on some dots of paint using the color they associated with the “wee” sound.

Now that the students had their paintings, they could respond to their own combinations of color instead of the color panels. I selected the first

student by birthday (that day or close to it) and had him hold up painting facing the class. This time I only selected a xylophone group so I could focus on the quality of sound. I was surprised when the class did not even notice the vocal group omission.

For this first performance each performer of the xylophone group was assigned a note to play in response to a color based on the response sheet of the student who was presenting his painting. The class was told that they were they the audience and were going to be “listening” to this student’s painting. The class quickly quieted down and seemed intrigued since I am certain they had never been told they could “listen” to a painting before.

After the performance, the students applauded respectfully. One student from the audience was selected to determine which color from the painting was the “hoo” color, which was the “ahh” color, and which was the “wee” color. The student was accurate which meant the first exercise of relating sounds to color had some validity. Some students wanted to know what “kind” of music this was and we came up with the term “Soundscape.” I thought this was an appropriate description since the sounds the students created described the environment of colors they created in their paintings.

All of the aforementioned activities involved elementary grade levels. When I had the opportunity to work with high school students, I anticipated

some different outcomes. I knew high school students would have better concentration and motor skills and could work quickly. What I was not sure of was how willing these students would be to perform. The students in question were enrolled in an Intro Art class and I am certain they signed up for this elective with no expectation of ever having to perform.

As I expected, the initial performance of having to produce sounds from three different areas of their bodies created obvious anxiety in the high school students. This had never been an issue with the elementary students. Also in contrast, high school students breezed through the instructive steps of selecting choices on response sheets and painting based on their responses. However, when they were asked to create a performance based on their paintings using their response sheets as a guide, I noticed the same anxiety when asked to produce sounds at the beginning of the experiment.

One explanation for the contrast in performance anxiety between the elementary and high school levels is self-consciousness from peer pressure. I would have liked to have had an opportunity to work with middle school students - to observe reactions to performance requests - considering their spontaneous and uninhibited expression disappears, and by seventh grade a critical awareness has developed (Lowenfeld, 349).

V.

REFLECTION

*Ladies and gentlemen! I see a song. I paint music. I hear color.
I touch the rainbow, and the deep spring in the ground.
My music talks. My colors dance.
Come, listen, and let your imagination see your own song.
– Eric Carle from *I See a Song**

When I first began this project, I envisioned many idyllic outcomes. First, I dreamt that students would find new sources of inspiration for painting through music. I even hoped that some inveterate art students would be inspired to compose music. And in my most halcyon dream, I discovered a foolproof formula for creating abstract paintings for myself. Of course, none of these outcomes came even close to manifestation, but in the pursuit of these lofty ideals, some unanticipated discoveries were made.

The first, and most important, conclusion I have reached is that the source of creativity cannot be reduced to a formula. Of course, after all is said and done, the source can be analyzed, but only for each individual work

of art. And it makes sense to understand sources of creativity from an individual, even romantic point of view. After all, creativity is the pure essence of what being human is all about - so, how can that be put into a reliable formula for all to follow? Certainly, the historical trends of the abstract painters in the first half of the twentieth century could be linked to synaesthetic methods. But it would be folly to ascertain that synaesthesia was the secret, the genie in the bottle so to speak, which lead them to a pure form of art. Even the notion of a pure form of art is subjective, entirely at the artist's point of view.

I am not discounting the value of the synaesthetic experience, quite the opposite. As for the students who shared in my experiments, I received only positive feedback. Students, indeed all human beings, enjoy the opportunity to make choices. And in this experiment, students were asked to choose vocal sounds and musical notes in response to color. It did seem at times that asking art students to respond to their own paintings with music was akin to "shooting fish in a barrel" since these students are essentially primed for this activity. I often wondered if the same enthusiasm would have been encountered in a chess club.

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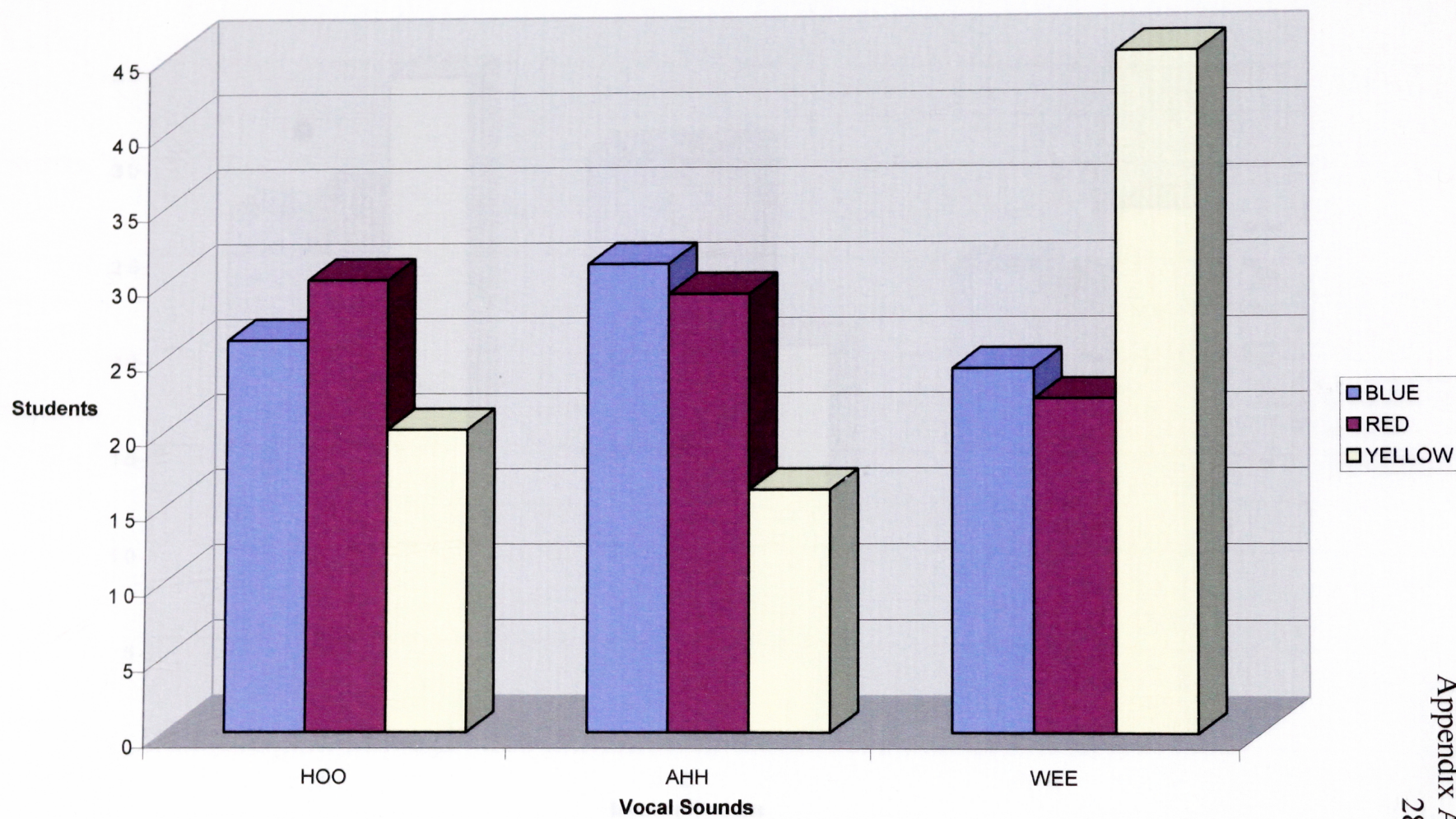
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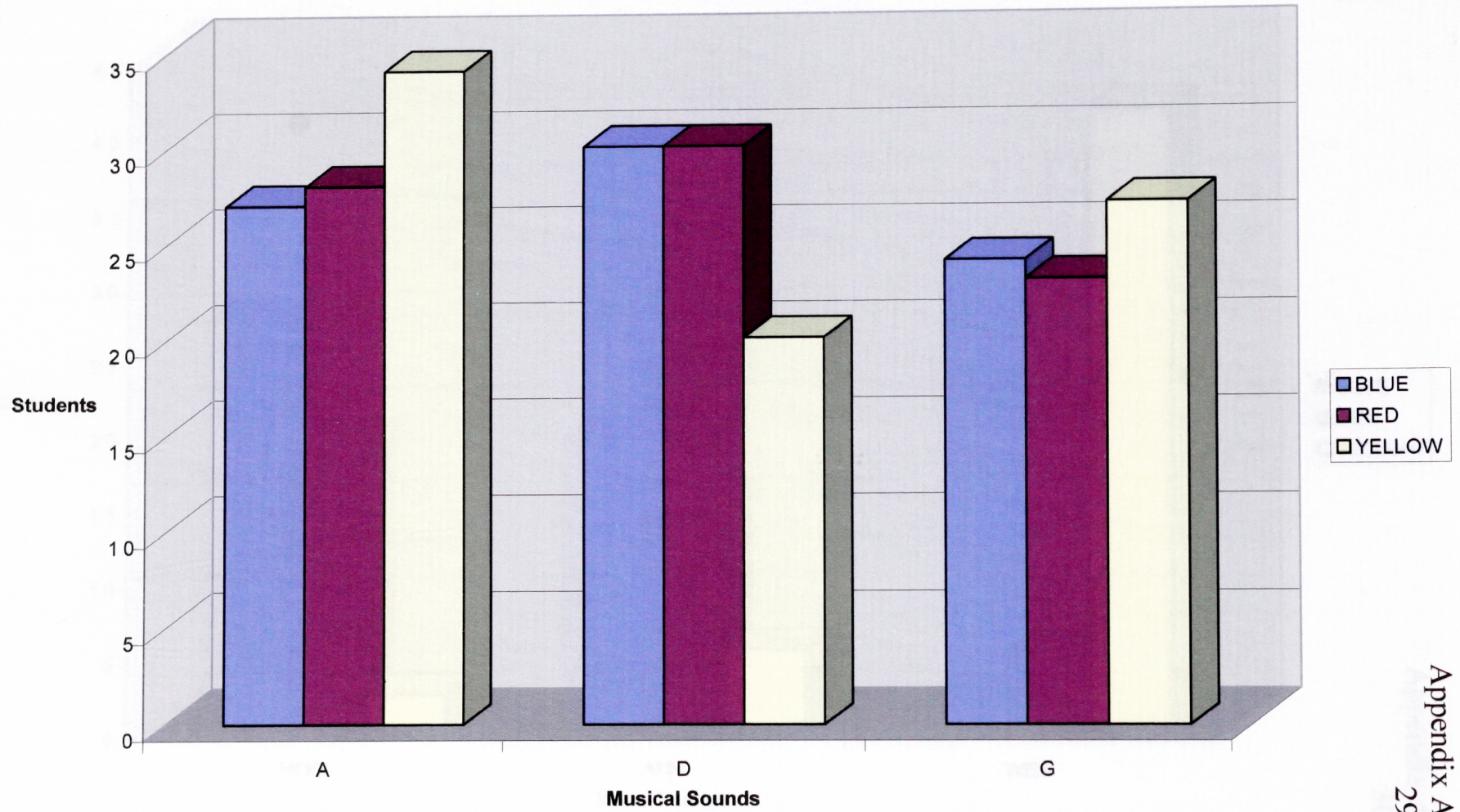
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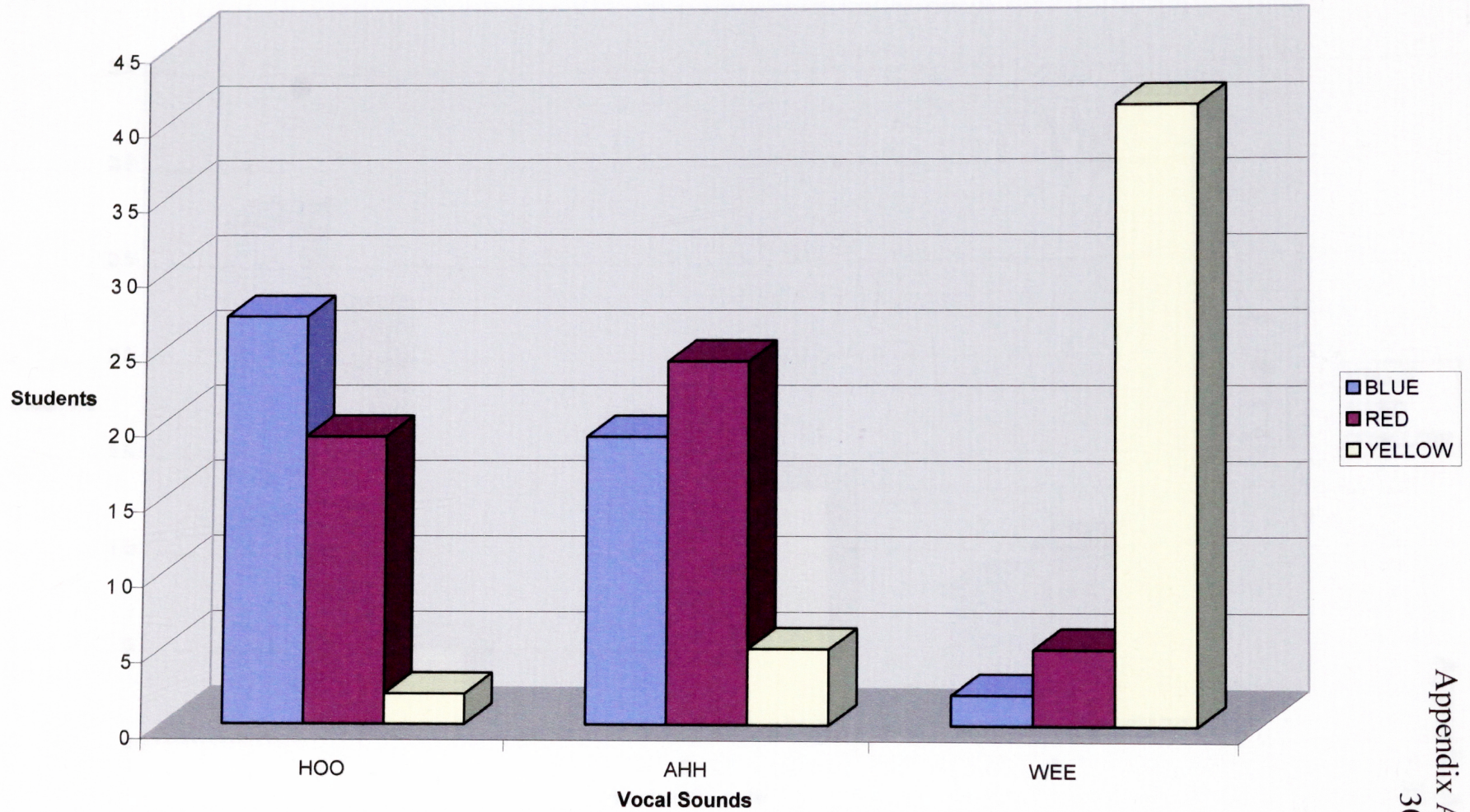
Elementary Grades



Elementary Grades



High School Grades



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